

ABSTRACT OF THE DISCLOSURE

An in-band signaling mechanism for detecting and correcting congestion, load imbalance, and lack of fairness problems in an resilient packet ring ("RPR") network, including a Wavelength Division Multiplex RPR ("WDMRPR") network, is disclosed. The signaling mechanism comprises including unique signaling fields in the RPR header of bearer packets sent on the RPR network. In one embodiment, the signaling fields include fairness specific fields that are used only for the purposes of implementing fairness amongst the nodes of the RPR, load balancing specific fields that are used only for the purposes of detecting load imbalance and implementing load balancing between the rings, congestion control specific fields that are used only for the purposes of detecting and relieving congestion on a ring, and common fields that are used by any of the aforementioned functions.